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# STAR FORMATION OUTSIDE THE ELLIPTICAL GALAXY NGC2865

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**We have searched for young stellar complexes around the elliptical galaxy NGC2865. We find them in a ring of HI around the galaxy. Using the Multi-Slit Imaging Spectroscopy Technique (MSIS), we detected a total of seven Hα emitters in the south part of the tidal tail of the galaxy NGC2865. These regions are young sources with stellar masses in the range $4\text{x}10^3 M_\odot$ to $2\text{x}10^6$ $M_\odot$, overlapping the location of the low density intergalactic HI gas, where the probability to form stars is expected to be low. For one of the intergalactic HII regions we estimated a solar oxygen abundance, 12 + log(O/H) ∼ 8.7. Given these proprieties, the regions are considered young star forming regions, born in-situ from a pre-enriched gas which has been removed from the host galaxies in a merger event.**

In this work we present new Gemini spectroscopy using the novel MSIS technique. We detected seven intergalactic Hα emitters in a field of view of $5' \times 5'$ centered on the south tidal debris of the elliptical galaxy NGC2865, down to a flux of $10^{-18}$ erg cm$^{-2}$ s$^{-1}$ Å$^{-1}$.

Using the Hα line we infer an average star formation rate for these regions of $<10^{-3}$ $M_\odot$ yr$^{-1}$. The low SFRs are consistent with the fact that they are located in low density HI gas. The detection of Hα emission suggests that the last burst that gave birth to the stars was no longer than 30 Myr ago. Considering that Hα traces massive star formation and that 30 Myr is the typical life-time for this type of stars.

We detected and analysed GALEX FUV and NUV data for five of these intergalactic HII regions around NGC2865. These UV sources have ages <200 Myr and span a wide range of masses ($1.7\times10^7$ to $5.0\times10^3$ $M_\odot$). The young ages and the low masses suggest that they were formed after the interaction experienced by the host galaxy. We concluded that they have masses of the order of star clusters and are lower than the masses of regions found in HI tails of compact group (de Mello et al. 2012; Torres-Flores et al. 2009). de Mello et al. suggested that this can be an environmental effect, i.e. that compact groups of galaxies with tidal tails of HI are more likely to host more massive star-forming regions or TDGs than interacting galaxies.

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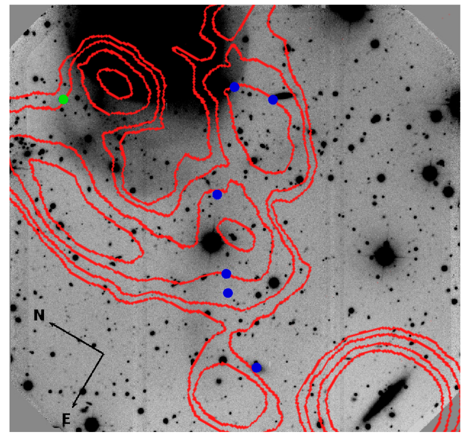


Fig. 1. The HI gas is shown as red contours on an optical $r'$-image from Gemini.The HII region candidates are indicated by the blue solid circles and with green the region for which we estimated the metallicity. The contour levels are 1.9, 3.8, 7.6 and 11.4 × $10^{19}$ cm$^{-2}$.

In Fig. 1 we show the Hα emitter regions, found in this work superposed onto the HI contours and Gemini $r'$-image. We are able to estimate the oxygen abundance for one IHII region (green dot in Fig. 1), 12+log(O/H)= 8.7, close to the solar metallicity (Asplund et al. 2009). We also verified that this region is metal rich with respect to typical dwarf galaxies.

The young ages of all regions and the high metallicity of one HII region strengthen the hypothesis that they were born in-situ from pre-enriched gas from the merger event, which also led to the formation of NGC2865.

## REFERENCES

Asplund, M., Grevesse, N., Sauval, A. J., & Scott, P. 2009, ARA&A, 47, 481

de Mello, D. F., Urrutia-Viscarra, F., Mendes de Oliveira, C., et al. 2012, MNRAS, 426, 2441

Torres-Flores, S., Mendes de Oliveira, C., de Mello, D. F., et al. 2009, A&A, 507, 723